

SECTION B**Area of Impact: Education**

2. (a) **Identify *two* ways data collected during the day may be entered into the laptop computer.** [2 marks]

Answers may include:

- typing data directly into the computer
- transferring data from data logging devices using infrared ports or cables
- transferring pictures from their digital cameras using cables or memory sticks
- transferring data from equipment using Bluetooth technology.

Award [1 mark] for any one of the above ways identified up to a maximum of [2 marks].

- (b) **Students use a spreadsheet to show some of their results. Describe *two* ways a spreadsheet can be used to analyse the results obtained during their activities.** [4 marks]

Answers may include:

- Easy to create tables to show results – numbers and text can be given appropriate formats and be presented in an organized and clear way in table form.
- Different formulas/functions can be used to calculate/estimate results – spreadsheets can calculate with direct calculations from data entered in their cells or may use a function wizard to help find an appropriate function to present the desired results.
- Data can be represented as graphs – spreadsheets will provide different types of graphs to show numbers, and they are visually more effective than tables with numbers.
- Some of the data may be changed and using the formula provided the results might change (“what if...? scenarios”) – students may make assumptions and try different values – the spreadsheet will calculate the results and students can compare them.
- Tables may be designed and formulas entered previously with the help of a teacher to make sure no mistakes are made – data can then be entered and changed and results will always follow the correct assumptions without calculation mistakes.
- Data may be transferred to other programs – data may then be included in printed reports, graphical presentations, or databases.

Award [1 mark] for identifying each way up to [2 marks].

Award [1 mark] for each relevant description of how the spreadsheet is used to analyse results up to [2 marks].

- (c) **Once students return from their trip they have to report back to their class showing their findings and what they have learned. Explain *one* advantage of using a word processor and *one* advantage of using presentation software to report about the work done during their field trip.** **[4 marks]**

Answers may include:

Word processor

- word processor can be used to type and print reports showing pictures and be displayed in panels around the school auditorium – audience can walk around and read the reports at their own pace, concentrating on what interests them most – printed material could be kept on display after the presentation day and other people may come and look at it
- printed reports can include extensive analysis of data produced by other programs
- word processed documents can be saved as PDF to be shared
- word processed documents can be distributed to the rest of the class and parents to inform about the results of the field trip
- reports of different students may be easily joined into one word processed document.

Presentation software

- a presentation program allows the presenter to guide the audience through points he/she thinks are most important
- a presentation program may include videos and sound (music or interviews/opinions)
- a presentation may be presented on a large screen and be very impressive for the audience
- may include links to web sites which may be used by the presenter if needed during the presentation.

[1 mark]

A limited response that indicates very little understanding of the topic.

[2–3 marks]

A reasonable description of an advantage of using a word processor and an advantage of using presentation software although the answer may lack appropriate reasoning at the bottom end of the band. [2 marks] for one advantage for each identified or one advantage described. [3 marks] for two advantages (one for WP and one for Presentation software) described.

[4 marks]

A clear, detailed explanation, giving reasons for both advantages.

- (d) **Taking school IT equipment such as laptops, digital computers, data logging devices and sensors to a field trip causes some concerns for the school and teachers. To what extent are these concerns outweighed by the educational advantages for the students?** **[10 marks]**

Answers may include:

Concerns

- school may have to invest and buy equipment that can be taken outside school for a week without leaving the students that stay in school without it
- school/teachers may be worried about the security of the equipment/risks of them being damaged
- school may have to negotiate a new insurance policy for equipment that may be expensive
- school may be worried that a group of students carrying expensive equipment may be target of theft *en route*
- teachers may have to change the way they work/ask for results and expect different types of results from students
- teachers may have to receive training in the use and (maybe) problem solving techniques on the use of the equipment
- teachers may have to prepare alternatives in case the equipment fails thus resulting in having to prepare double the amount of work.

Advantages

- students will not lose time writing in reports manually
- the risk of losing papers or handing in work with poor presentation will be lower as all results will be in the computer and not on paper
- the level of analysis/work may be different, allowing creative students to provide new ideas
- this can be used as an incentive for students to prepare material and provide results presented in several ways
- school may use this as a promotion/image tool to promote the school as a modern, IT teaching environment
- teachers will not have to prepare, print and carry individual booklets for students to fill in the answers
- teachers will not have to read through papers that may get dirty because of the weather, in bad handwriting, instead they will receive printed results or read them directly from the computer
- material may be almost ready to set up on the school web site and show to parents soon after they return
- the use of IT equipment may encourage some students to do the work because they like to use the equipment
- students will learn how to use IT equipment that may be useful later.

In part (d) of this question it is expected there will be a balance in the ITGS terminology between IT technical terminology and the terminology related to social and ethical impacts.

Please see generic markband information sheet on page 22.